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Industrialized-subsidized housing in the Hackensack meadowlands

Andrew Carl Gildersleeve
New Jersey Institute of Technology

INDUSTRIALIZED-SUBSIDIZED HOUSING IN THE HACKENSACK MEADOWLANDS

BY

ANDREW CARL GILDERSLEEVE

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ABSTRACT

New Jersey as well as the rest of the nation is beginning to feel the pinch of what has been termed the housing crisis. The products of the World War II baby-boom are now reaching the age where they require homes of their own, making the demand for good quality low-cost housing very high. At the same time, the demand for good public housing continues to grow and we are learning that our previous efforts in this field have been far from satisfactory.

In the course of this study I have looked into the possibilities of solving a portion of this housing problem within the boundaries of the Hackensack Meadowlands District. This has required a detailed study of site conditions, zoning and building regulations, and the adaptability of industrial techniques. In addition, study has been made in the economic fields to determine what types of financial modifications or subsidies would be necessary to meet the related capital demand.

This thesis study has established the feasibility of utilizing industrial technology and governmental subsidies to meet the housing needs of low and moderate income groups as well as those of the general public within this part of New Jersey.

APPROVAL OF THESIS

INDUSTRIALIZED-SUBSIDIZED HOUSING

IN THE HACKENSACK MEADOWLANDS

BY

ANDREW CARL GILDERSLEEVE

FOR

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BY

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CHAPTER I

INTRODUCTION

A. Housing Need

Since the beginning of time man has required certain basic elements to sustain himself, namely, food, clothing and shelter. Within the United States and the other industrialized nations of the world he has developed the necessary engineering technology to adequately feed and clothe himself. The science of shelter however, has been slower in its evolution. As late as the 1930's one third of the United States was considered ill-housed.[1] By 1970, there were still some 13 million families, roughly one quarter of the nation, with inadequate housing. Of this number approximately 7 million were living in physically substandard housing; 5 million were living in units whose cost was 25 to 30 percent above what they could reasonably afford; and nearly 1 million families were living in over-crowded conditions.[2]

The problem that confronts us today is the realization that what has been conceived as a housing problem, is fast becoming a housing crisis. A review of recent census in-

1. Financing the Nation's Housing Needs, The Committee for Economic Development, New York; April 1973, p. 9
2. HUD Newsletter, U.S. Department of Housing and Urban Development, Washington D.C.; April 15, 1974

formation shows us that one key segment of the population, between the ages of 14 and 24, showed a 52% increase in the 1960's.[3] This same group will be between 24 and 34, the age when most people are looking for their first homes, during the 1970's. These figures indicate a sharp peak in the population which has never been witnessed before and which will in all likelihood never occur again. It is easy to follow the progression; the baby-boom of the late forties and fifties became the youth explosion of the sixties and now threatens to produce the housing crisis of the seventies.

B. Federal and State Programs

In response to this unprecedented housing demand the federal government enacted the 1968 Housing and Urban Development Act with the purpose of providing 26 million housing units within a ten year period. Among these were 6 million subsidized units to meet the needs of the nation's poor and elderly.

As a portion of this same 1968 legislation, Operation Breakthrough was announced as an attempt to introduce industrial technology and efficiency to the housing industry. The program resulted in contracts producing just under 3000 units at nine different sites. From these meager beginnings it was hoped that the efficiencies of assembly line produc-

3. D. P. Moynihan, "Peace - Some Thoughts on the 1960's and 1970's", Coping, Random House, New York; 1973 pp. 7-8

tion could be made workable for the producers of housing as they had for the other principal commodity manufacturers.

At the same time that the federal government was developing its programs, the New Jersey Legislature was also wrestling with the housing problem. Within the newly founded Department of Community Affairs two new agencies were established, The New Jersey Housing Finance Agency (HFA) and the Hackensack Meadowlands Development Commission (HMDC). The HFA was set up to provide financing for moderate income housing and their related support facilities such as day-care centers and schools. The HMDC was established to develop and administer a land use plan for 20,000 acres of metropolitan northern New Jersey. The resulting master plan called for construction of residential units to house approximately 125,000 new residents within the last remaining large tract of open space inside the inner ring of the New York City metropolitan area.

As was the case with the federal program, both state agencies recognized the need for subsidized housing, and put special emphasis on providing dwelling units for moderate and low income groups.

C. Financial Considerations

As time has proven that low income groups cannot pay

for a decent housing environment, the responsibility to provide for this requirement has fallen to various governmental agencies. However, the federal and state governments as well as those developers who provide the remainder of housing in this country must rely on a healthy economy and a strong financial community if they are to be able to finance this requirement. A recent study done for the Committee for Economic Development indicates that a three-phase attack must be launched if the housing industry is to have adequate financial backing to supply the housing demand.[4]

1. Financing must be provided at all levels of the housing industry to insure an adequate flow of mortgage money for all builders.

2. Steps must be taken to level the cyclic disruptions in the mortgage market which have in the past created housing booms and droughts.

3. Aid must be supplied to those families who simply do not make an adequate income to support decent housing.

D. Scope of Study

It is the purpose of this study to determine the feasibility of providing "Industrialized-Subsidized" housing in the Hackensack Meadowlands. In the chapters to follow, the major factors which must be addressed to determine if this or any other type of housing is to be constructed will be

4. Financing the Nation's Housing Needs, The Committee for Economic Development, New York; April 1973, p. 11

investigated. Specifically, this will include an in depth review of the HMDC's regulations and codes, as well as a study of the site conditions in the area. Consideration will be given to the adaptability of Operation Breakthrough technology to determine if those types of structures are suited for use in this area. Inquiry will be made to determine which state and federal subsidy programs are applicable here. Lastly, study will be made to determine the socio-economic impact of this housing on the surrounding area.

Once the fixed points in the development picture have been established, a program will be developed to bridge the gap between what the developer is normally willing to provide and what society says he must produce.

A solution to this problem is made conceivable only by the coincidence of three rather unique factors. First, the period of history with regard to housing need is unique. Secondly, the place of development, a large island of open space in a sea of urban sprawl is unique. Lastly, the legal framework in the form of a multi-faceted commission type government is uniquely able to administer such a program. Hopefully, these forces can be combined in such a way as to solve the problem of providing good quality low-cost housing.

CHAPTER II

HOUSING, PAST AND PRESENT

A. History

Ever since early man left the trees and entered caves to gain protection from the elements and his enemies, he has made adequate shelter a necessity of life. When natural caves could no longer meet his needs for space and protection he found it necessary to construct his home. The sticks and stones that surrounded him provided the raw materials and his hands become the tools of his trade. From these humble beginnings the construction industry was born.

As time passed, the population increased and the lack of good transportation dictated that one must reside near his place of employment. The competition for space within the resulting cities soon brought about the requirement for multi-family development. As larger and larger numbers of Americans turned to this type of housing, the limited stock of urban multi-family housing began to show the wear of overcrowding and depreciation.

When it became evident that the housing of the general public was in fact substandard, the government began a long campaign to remedy the problem. The United States has seen a progression of specific housing legislation dating back to the National Housing Act of 1937. Each successive pro-

gram has been larger and more impressive and all have made special attempts to remedy the housing needs of the poor. The latest and most grandiose of these was the 1968 Housing and Urban Development Act. As mentioned in Chapter I, its goal was to produce within one decade, a total of 26 million new housing units of which 6 million were to be made available to the nation's poor. Five years after the beginning of the program it was estimated that approximately 12 million units had been completed of which only 2 million were subsidized.[1] To make the situation even worse, a large number of the total units produced were in places like Florida and California and were designed to meet the second home needs of the middle and upper classes. In general, the greatest housing production was not in the areas of greatest housing need.

B. Industrialization

26 million housing units was a large order to fill, one that might require the restructuring of the entire housing industry. If man was to continue to build his homes from sticks and stones as his early ancestors had, he might never realize his goal. It seems incredible that the United States, a country well known for its industrial technology, had not yet utilized it successfully within the construction industry.

1. J. E. Carlson, "Our National Housing Goals: Where do They Stand Now?", Architectural Record, May 1973, p. 62

Unlike the United States, the European continent had been left in shambles with the passing of World War II. Faced with the awesome task of rebuilding, these countries had turned to industry to help them out of their plight. France, Denmark and Sweden were the first to begin programs for prefabricated and industrialized housing. By the 1950's the other European countries as well as the U.S.S.R. had followed suit and by the early 1960's, Europe was using industrialized systems to help produce over half of their building needs.

C. Operation Breakthrough

Recognizing the desirability of mass produced housing, the 1968 Housing and Urban Development Act provided for investigation of new industrialized approaches to meet the unprecedented public demand for good quality low cost housing. In May 1969 George Romney, Secretary of the Department of Housing and Urban Development (HUD), announced Operation Breakthrough. This program was established to nurture the development of industrialized housing systems that would produce housing quickly at costs below those of conventional construction.

During subsequent months, HUD received a total of 632 separate proposals which were categorized as follows: 244 called for construction of complete housing units; the remaining 388 concerned both the hardware and software seg-

ments of the industry. The latter included such items as, component sub-systems like kitchens and bathrooms as well as management and finance systems. A special report released by HUD in December of 1970, rated 423 of these proposals with respect to forty separate parameters.[3] The remaining 209 submittals were not considered, as their sponsors did not wish to release the required information due to proprietary interests.

The net result of this program was the selection of twenty-two individual housing systems to be incorporated in the production of 2938 dwelling units at nine sites. The names of the producers and the site locations of these developments are listed in Tables I and II.

Operation Breakthrough did not, however, get off to a very good start. Two years and 20 million dollars after its inception, no housing units had actually been produced.[4] HUD's initial presentation called for production of housing at approximately $20.00 per square foot, but some of the proposals came in at twice this amount, while most were in the $25.00 to $30.00 range.

The Jersey City Redevelopment Agency recently prepared

3. Housing Systems Proposals for Operation Breakthrough, Washington D.C.; G. P. O., December 1970

4. E. Coleman, "Boxes are Stacked 18 Stories to Form Building", Engineering News Record, June 14, 1973, p. 22

TABLE I

OPERATION BREAKTHROUGH SYSTEMS

#	Developer
1.	Alcoa Construction Systems
2.	Boise Cascade Housing Development
3.	Building Systems International
4.	CAMCI, Inc.
5.	Chrisitana Western Structures
6.	Descon/Concordia Systems Ltd.
7.	FCE-Dillon, Inc.
8.	General Electric Company
9.	Hercules, Inc.
10.	Home Building Corporation
11.	Levitt Technology Corporation
12.	Material Systems Corporation
13.	National Homes Corporation
14.	Pantek Corporation
15.	Pemton, Inc.
16.	Republic Steel Corporation
17.	The Rouse-Wates Company
18.	Scholtz Homes, Inc.
19.	Shelley Systems, Inc.
20.	Sterling Homex Corporation
21.	Townland Marketing and Development Corporation
22.	TRW Systems Group

TABLE II

OPERATION BREAKTHROUGH SITES

Location	Units	Systems Used *
Indianapolis, Ind.	295	7,8,10,12,13,14,15,18
Jersey City, N.J.	486	4,6,19
Kalamazoo, Mich.	245	7,9,11,12,13,16,18
King County, Wash.	178	1,5,11,12
Macon, Ga.	287	1,2,3,5,9,12
Memphis, Tenn.	518	2,7,8
Sacramento, Cal.	407	1,2,5,7,12,14,22
Seattle, Wash.	58	21
St. Louis, Mo.	464	6,10,12
TOTAL	2938	

* Systems are numbered according to Table I

a report for the New Jersey Department of Community Affairs, in which they compare the construction costs of the Jersey City Operation Breakthrough systems to those of conventionally built structures. Specifically, they have drawn comparisons between figures for each of the three Breakthrough proposals and those for the Paulus Hook Towers, a 308 unit high-rise public housing project which was under construction in Jersey City at about the same time. The preliminary report indicates the following square foot costs.[5]

System	Units	Sq. Ft.	Cost/Sq. Ft.
CAMCI	153	148,700	$ 23.90
Descon	141	152,125	$ 32.10
Shelley	192	250,000	$ 31.90
Paulus Hook	308	274,880	$ 23.60

It is evident that even considering the average costs of the three Breakthrough systems, $ 29.30 per square foot, the costs were significantly higher than the Paulus Hook project or the $ 20.80 per square foot cost estimated for similar construction in the nearby Newark area. It should be noted however, that these were proto-type developments and therefore reflect inproportionate costs for research and development. HUD representatives estimate that by 1980 the cost of industrialized housing will have dropped to one half that of conventionally built units.

5. G. Parsons, Operation Breakthrough Jersey City, Jersey City Redevelopment Agency, Jersey City; 1974, pp. 77-80

For all of its shortcomings, Operation Breakthrough did produce some positive answers to the construction industry. The development of epoxy adhesives and binders made possible the erection of a ten story FCE-Dillon system building within 17 days at the Sacramento Breakthrough site. The work went so smoothly that the builder has since been contracted to build a similar structure to house the elderly on a lot directly across the street. The further development of the Shelley System proved that high-rise (18 story) structures could be produced using large building blocks that were hauled over conventional highway systems.

D. Mobile Homes

Another housing success was less noticeable but in many ways far more significant. When it became evident that HUD was not meeting its guidelines for units produced, a decision was made to include figures for production of mobile homes. While this segment of the housing industry was not initally included in the Operation Breakthrough program due to its apparent inability to meet building code and density requirements, it was in fact the only truly industrialized housing being produced in this country. In the truest spirit of industrialized technology, these units are produced entirely within the factory and are delivered to the site complete, including appliances, furnishings and carpeting. The ability to mass produce has resulted in costs of from $8.00 to $9.00 per square foot, which is less than

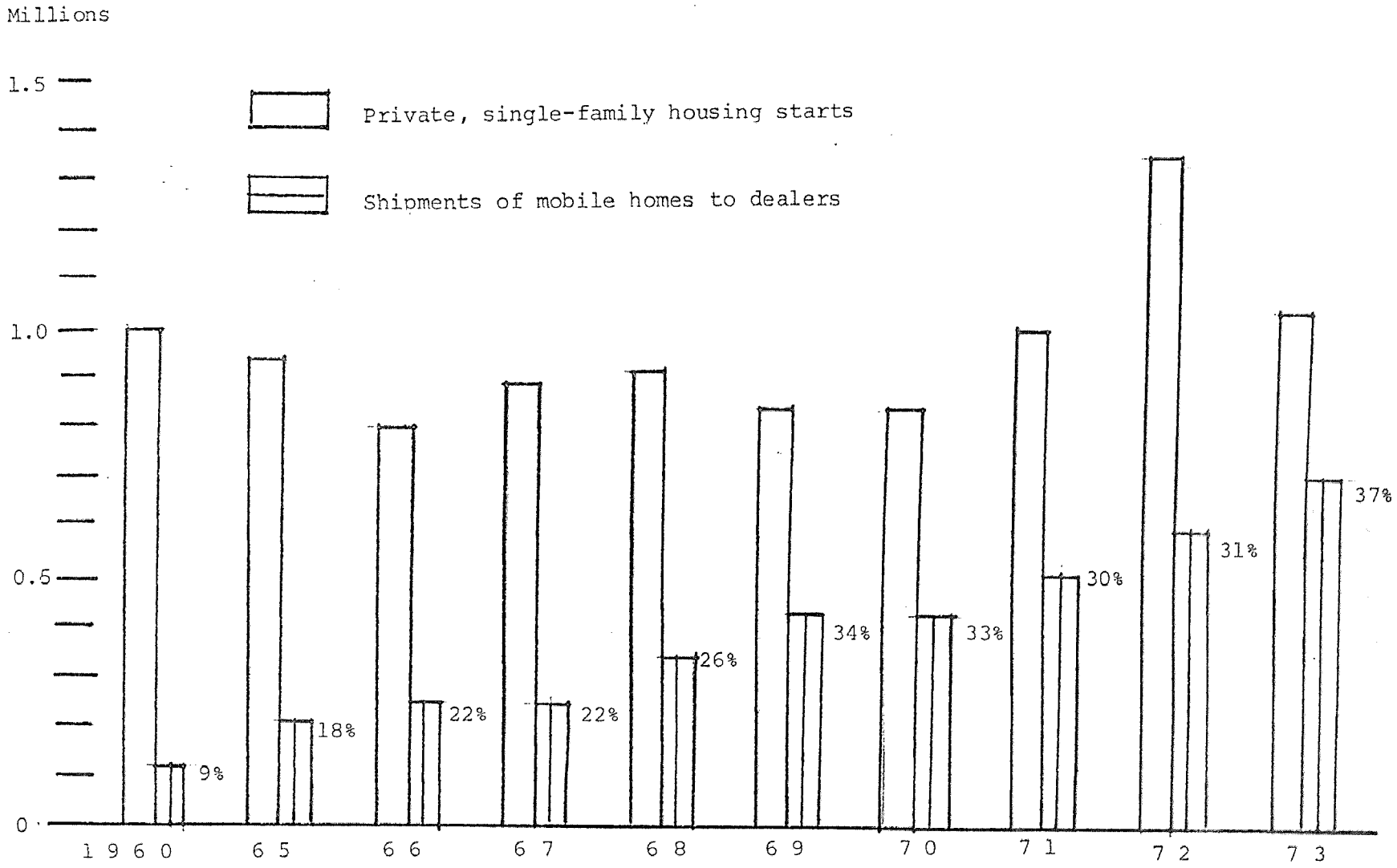
half the costs of conventionally built homes. The reaction has been unprecedented, in 1972 mobile homes accounted for 97% of the single family market under $15,000; 80% under $20,000 and 67% under $25,000. Even more significant, in 1973 more than one third of the new single family homes sold in this country were mobile homes.[6] (See Figure I)

The recent success of this type of housing is also due to the flexibility they are currently marketing. In addition to the conventional single wide unit, one can now purchase a double wide mobile home or a sectional structure is available which can be brought over-the-road in two or three pieces and assembled at the site on a conventional foundation. There is a further financial advantage since mobile homes are usually financed with a chattel mortgage which requires a much smaller down payment than conventional home mortgages. Also, mobile homes are usually taxed at a lower rate than other types of homes.

The problem of meeting building codes is also being addressed. Forty-two states have adopted codes regulating design and construction of the units and the Mobile Home Manufacturers Association (MHMA) is taking steps to standardize materials and specifications. (See Chapter III-D)

6. "Mobile Homes Move Fast to Fill Low-Cost Housing Gap", Engineering News Record, January 10, 1974, p. 16

FIGURE I



PERCENT OF MOBILE HOMES IN THE HOUSING MARKET

If one accepts the premise that industrialized housing is something which is produced almost entirely off-site, then the mobile home industry has been the most successful producer. Perhaps their assembly techniques can be modified to permit construction of units suitable for high density multi-family development.

CHAPTER III

THE HACKENSACK MEADOWLANDS DEVELOPMENT COMMISSION

A. Background

Throughout the history of development of the New York City metropolitan area the Hackensack Meadowlands has been viewed as an obstacle to get across rather than a place where one wanted to stop and spend time. Dutch and English settlers made valiant efforts at reclamation of the area during the 17th, 18th and 19th centuries, but each attempt resulted in dismal failure. Hence this piece of real estate became a place to put everything that wasn't wanted, i.e. garbage, industry and transportation facilities. It has only been in recent times that the area has been recognized for what it is, the largest single piece of urban open space in the East Coast megalopolis. It has ten times the area of Central Park and yet is less than ten miles from Times Square. Fifteen million people surround it within the five Boroughs of New York City, as well as, Newark, Jersey City, Paterson and suburban Bergen, Essex, Hudson and Passaic counties.[1]

This large natural basin, which was once the site of a glacial lake, is now a tidal marshland. It has escaped development over the centuries primarily for four reasons.

1. A. Savage, "The Meadowlands", Special Edition Article, The New York Times, May 1972

First, most of the land within the area was less than 6 ft. above mean sea level. Second, because of the underlying soils, the area required extensive filling operations as well as unusual and expensive foundation construction. Third, ownership of the property was in many cases obscure since the State of New Jersey claimed ownership to land which lay below the high tide line under the Riparian Doctrine. Lastly, the area was a hodgepodge of governmental jurisdictions; fourteen towns lying within two counties laid claim to portions of the meadowlands. In addition, at least ten other special authorities exerted jurisdiction within the area.

Recognizing the vast potential of this area, the New Jersey Legislature adopted the Hackensack Meadowlands Reclamation and Development Act creating the 20,000 acre Meadowlands District and setting up a commission type government to develop and administer a land use plan in the area. The Commission was charged with the task of providing for the orderly development of the area while protecting the delicate balance of nature within the existing saltmarsh ecosystem.

With the adoption of the enabling legislation, the HMDC was presented with a mandate to adopt and promulgate such codes and regulations as it deemed necessary for the control of development within its boundaries. These have

taken the shape of subdivision and zoning regulations, building codes, open space plans and tax-sharing regulations. As the HMDC's principal mandate was land use oriented, the zoning regulations have become the central and most important legal tool available to them. On November 8, 1972, the HMDC adopted its Stage II Master Plan Zoning Regulations which divided the District into fourteen development zones (Zones) and five larger specially planned areas (SPAs). (See Figure II)

B. Zoning

Zoning ordinances have traditionally been passive in nature. They rely on the development pressures of the market to establish buildings on an individual lot by lot basis. This has often resulted in a particular zone or plan being bastardized as the premium lots were developed first allowing the remaining ones to be compromised by use of variance proceedings.

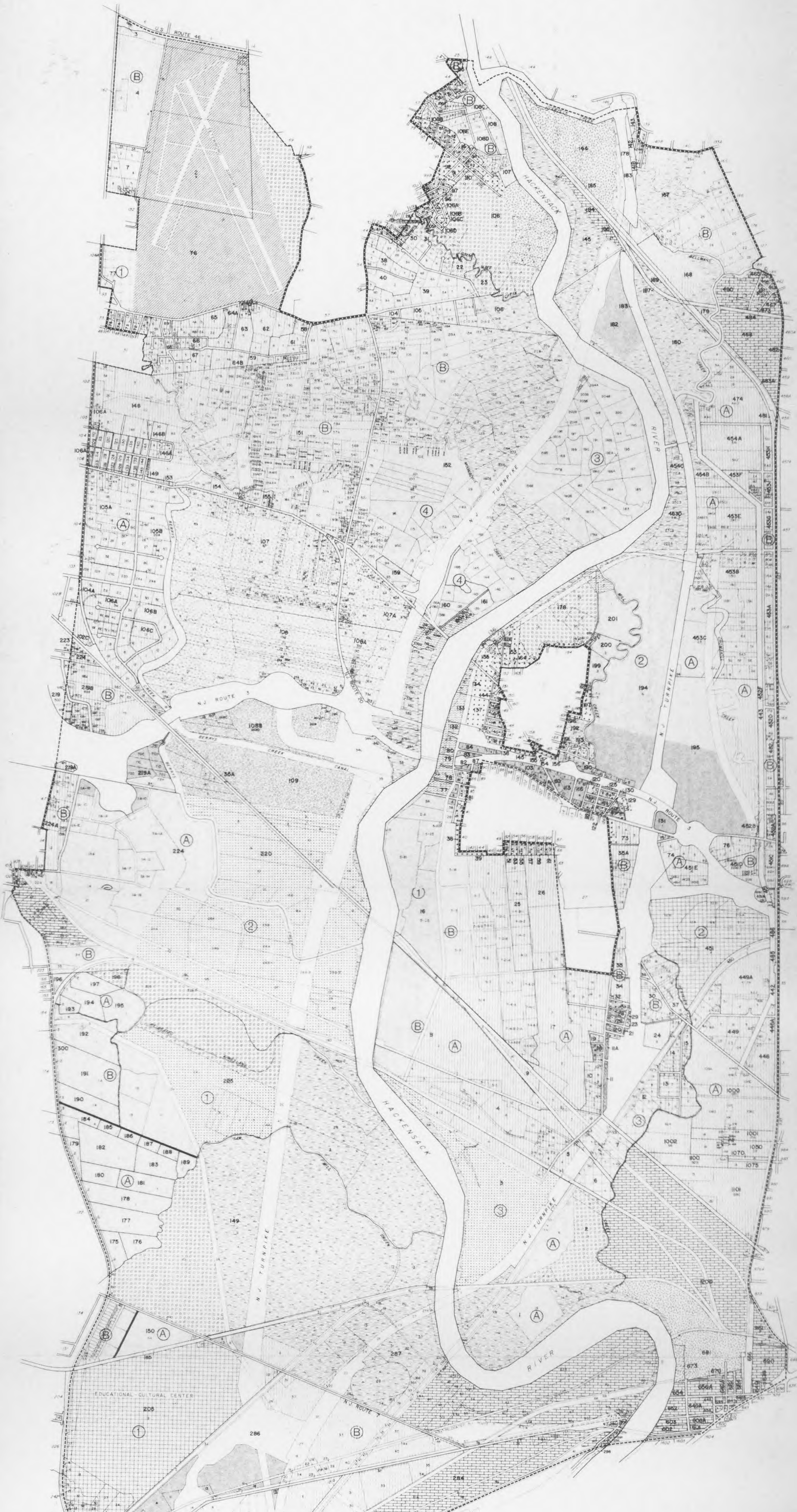
The regulations which control development within the SPAs are designed to avoid this problem. It is necessary that 80% of the land within a given SPA be controlled by one owner or a single management group. The Developer is then required to submit a three phase plan showing all improvements within the entire SPA.

The Statement of Purpose as taken directly from the HMDC Zoning Regulations best describes the scope of planning control envisioned.

FIGURE II

HACKENSACK MEADOWLANDS DISTRICT

OFFICIAL ZONING MAP



> The strategic location of large parcels of largely-undeveloped land in the heart of an intensely-developed metropolitan area gives the public the opportunity to require that development be undertaken on a large scale in order that the available land be used in the most efficient manner possible and in accordance with the most comprehensive and far sighted planning techniques which will be of substantial benefit to both the developers and landowners and to the public. These regulations take advantage of this opportunity by requiring that specific areas be used for the purposes envisaged for them in the Comprehensive Land Use Plan and be developed in the best possible manner. These regulations are designed to promote, moreover, the innovative and creative design of such areas, to facilitate the use of the most advantageous construction techniques in the development and use of land, and to assure a comprehensive treatment of environmental factors. 2

The final sentence of the above statement certainly invites the use of unconventional construction techniques such as industrialization and prefabrication.

The SPA's as designated on the HMDC official zoning map can be logically divided into four basic types. (1) Housing: Three Parkside Residential and four Island Residential SPAs are provided to establish housing for approximately 125,000 new residents. (2) Commercial: The Berry's Creek Center has been designated for retail and commercial uses. (3) Transportation: Three transportation centers are defined to serve as interfaces between the varying modes of transportation within the area.

2. Master Plan, Hackensack Meadowlands District Zoning Regulations, HMDC, Trenton, N.J.; November 8, 1972, p. VII-1

(4) Special Use: Two special use areas have been designated for development of a regional nature such as colleges and civic centers.

Of significant nature to this study are the Parkside Residential and Island Residential zones mentioned above. They have been located in such a way as to provide for a minimum travel requirement between one's home and his place of work, while also providing an adequate buffer between these opposite types of land use. The Regulations have also been written in such a way as to make maximum use of the individual site conditions.

The Parkside Residential SPAs are basically land oriented and are to be constructed in upland areas. They provide for the construction of housing in a park-like setting with interconnecting walkways and natural areas providing generous amounts of open space while permitting densities of 35 to 40 dwelling units per acre. On the other hand, the Island Residential SPAs are designed to take best advantage of the water and the marshland open space. This development calls for relatively high densities in small clusters interconnected with a network of waterways and large amounts of marshland open space. This will result in a total density of 20 to 25 dwelling units per acre.

In both cases, a developer is required to provide certain facilities in the form of neighborhood schools, shopping centers, medical facilities, day-care centers, and the like. In addition, he is required to provide a mix of housing types with a minimum of 10% of the structures being three stories of less and a maximum of 40% exceeding fifteen stories. There are further requirements with regard to the bedroom mix of the units and a specification that the resulting housing provide for a balance of income levels that reflect regional housing needs. This will dictate the provision of substantial amounts of housing for the elderly as well as low, moderate and middle income families.

In order to insure that the residential, commercial, and industrial land uses can co-exist, the zoning document also provides for environmental controls. The regulations are divided into three levels of stringencies and provide for control over such items as noise, vibration, glare and air-borne emissions. In addition, there are separate water quality standards establishing limits on BOD, pH, temperature, phosphates, heavy metals and seven other parameters. These regulations apply to existing as well as anticipated development and are designed to establish a liveable environment for each of the varied land uses within the plan. Two classes of controls are levied: The first protects

the natural habitat from human intervention, and the second protects human environments from intervention by industry and other man made problems.

C. Building Codes

The Commission has chosen to adopt numerous types of codes governing different aspects of construction anticipated within the District. As it now stands, all construction within the Island Residential and Parkside Residential areas will be reviewed under the New Jersey Department of Community Affairs,"Regulations for the Construction and Maintenance of Hotels and Multiple Dwellings". This code would provide for construction using conventional methods and materials. However, at the time of this writing, the State of New Jersey was entertaining Assembly Bill #1299, entitled the "State Uniform Construction Code Act", which calls for the standardization of building codes throughout the state. If this performance type code is accepted, the HMDC would in all likelihood adopt it, as it provides for industrialized housing technology, mobile homes, and the use of relatively new and unique building materials.

Because of the District's topography and unique geologic history, a special foundation code has been adopted for all construction in the Meadowlands District. This code is similar in scope and nature to that currently being used by the City of New York and provides for a wide variety

of foundation conditions. Further study will be given to the soils and foundation conditions in the next section of this chapter.

D. Site Conditions

The Hackensack River basin is the product of a long and involved geologic undertaking. The bedrock of sandstone and shale which underlies this area was deposited in the Triassic Age nearly one hundred million years ago. It forms a tilted table which is exposed at places along the eastern edge of the District and dips to some 220 feet below the ground surface along the westerly edge. During the Pleistocene Period, numerous glaciers advanced across the northern hemisphere the latest of which was the Wisconsin glaciation some 20,000 years ago.[3] Its most southerly advance took it some 23 miles south of the district where it formed the terminal moraine which now constitutes Long Island, Brooklyn, Staten Island and parts of the Short Hills area of New Jersey. During a subsequent world-wide warming trend, the glacier slowly melted depositing glacial drift in the form of boulders, sand and gravel at the bottom of what was to become Lake Hackensack. In the following years fresh water sands, clays and organic silts were deposited on top of the glacial drift at the bottom of the lake. As the warming trend continued, glaciers farther north fed the

3. Master Plan, First Stage, HMDC, Trenton, N.J.; November 1969, p. 15

ever-rising ocean until it eventually breached the dam in the areas of the Verrazano Narrows and the Arthur Kill. These openings continued to erode , permitting the deposition of marine silts and clays above the fresh water sediments. The current soil conditions are illustrated in the cross section shown in Figure III.

The soils in general are very poor in providing adequate bearing for conventional foundations as they are highly compressible and do not drain easily. These conditions promoted the adoption of a special foundations code which calls for adequate boring information prior to adoption of a foundation system.

The topography is extremely flat and most of the property within the District lies below elevation 6 ft. mean sea level. Because of this and the possibility of combined tidal and fluvial flooding, the HMDC stipulated in its November, 1972 adoption of the Zoning Regulations that no future buildings could be constructed with a finished floor elevation of less than 10 feet above mean sea level.

Ecologists would define the Hackensack River basin as a marsh-estuary. This is better defined as a condition rather than a place for it occurs only when salt water and fresh water are allowed to mix in a regulated way. The

FIGURE III

HACKENSACK MEADOWLANDS GEOLOGIC CROSS SECTION

Time Period	Soil Structure
	Recent Peat
Ocean Rise	Marine Silts and Clays
Glacial Lake Hackensack	Varved Clay and Silt
Wisconsin Glaciation	Glacially deposited Sand, Clay, Glacial Boulders
	Triassic Shales and Sandstones

result is a highly complex and extremely varied plant and animal environment. Even though it has experienced 200 years of degradation by mankind, the Hackensack marsh-estuary is still a vital link in the environmental chain of life. It would be unfair however, to say that it is all good marshland. Most areas have been stressed beyond the breaking point in terms of oxygen demand and food production. It is by use of its innovative land use planning techniques that the HMDC is able to set aside those marshland areas which show the most promise for full recovery and to relegate to lesser uses those that are in a marginal state. It is not true however, that one can do as he pleases in these areas, for the estuary depends on full tidal flow for its survival. Extreme sedimentation and turbidity due to construction within one area may be carried by the tides, and have marked effects on other areas within the basin. Because of the unique hydrologic characteristics of the river, a bottle thrown in the river at the north end of the District may go through five tide cycles before it enters Newark Bay at the southern end. Therefore, extreme caution must be used in selecting a construction technology which is capable of providing the necessary housing while creating a minimum of disruption to the surrounding habitat.

CHAPTER IV

FINANCIAL PROGRAMS

A. History of Federal Involvement

The United States has had a long history of housing legislation as mentioned in Chapter II. Most notable among these were the Housing Act of 1949 and the 1968 Housing and Urban Development Act. In both cases, a housing policy was established with the aim of creating a suitable living environment for all Americans. The 1949 Housing Act did provide a large number of housing units to meet the needs of returning World War II veterans but fell far short of reaching its anticipated goal. Likewise, the 1968 version is not keeping pace with its goals and shows signs of also failing.

It should also be noted that both programs provided a significant amount of federally financed housing to meet the needs of low and moderate income families. Although an increased number of housing units have been produced, the net result has been that those who needed good housing the most, have had the least exposure to it. This has come about primarily because of a reliance on the so-called filter system. In essence, this theory proposes that as additional housing units are made available, higher income families will purchase new housing allowing their previous homes to be purchased by moderate income families. These

families would then turn their housing over to lower income groups. However, constant increases in demand for housing as well as the effects of inflationary economies have managed to keep the cost of most of this housing far above the range of the average low income family.

The most important reason for this problem has been the fact that there has never been a specific financial policy developed to go hand in hand with the adopted national housing policy. The 1968 Housing and Urban Development Act did make an attempt to rectify this situation by pledging that the federal government would do what it could to assure an adequate flow of credit for the construction industry.

Providing an adequate flow of credit dollars turned out to be a far more difficult task than the government had anticipated. The problem, in part, lies in the fact that the credit monies in this country come from many different places, each of which has rules and regulations peculiar to itself. Traditionally, 60% of the housing built in this country has been financed by savings and loan associations. An additional 30% was mortgaged through commercial banks and insurance companies, with the remaining 10% coming from construction interests, private companies and individuals.[1] Unfortunately, these groups have

1. Financing the Nation's Housing Needs, The Committee for Economic Development, New York; April 1973, p. 9

not been able to provide a consistent level of financing to match the country's housing demand.

As mentioned above, the majority of housing is financed through savings and loan and mutual savings banks. However, these organizations have been hampered by regulations fixing their interest rates. This has in many cases rendered them incapable of competing with the open market. In the late 1960's during a condition of general economic prosperity, people deserted these banks to invest their monies directly in the stock market or other organizations which offered them a much higher rate of return on their investments. Subsequently, the mortgage monies dried up, and in a period when the economy was in general, healthy, the housing industry was dying a slow death. A reverse trend in now beginning to be felt. As people lose faith in the open market, they once again invest their savings in more stable banking institutions thereby making mortgage money available to the housing industry.

B. Current Federal Programs

In an attempt to reduce the amplitude in the cyclic swings in interest and credit availability, the federal government has established four institutions. These agencies are known as the Federal Home Loan Bank System (FHLBS), the Federal Home Loan Mortgage Corporation (FHLMC), the Federal National Mortgage Association (FNMA) and the Government National Mortgage Association (GNMA). Each is different

in its make-up and in its internal operation, however, all were established to work toward the common goal of providing sufficient amounts of building credit. These four in conjunction with the existing Federal Housing Administration (FHA) and the Veterans Administration (VA), both of which insure mortgages, are designed to interact directly with the securities markets. Hence, when the economy in general is good and investors are removing their money from savings oriented institutions to speculate on the market, these groups will step-in to act as an intermediary between mortgage investors and the securities market. The ability of these groups to operate effectively has been enhanced by the fact that they can often raise funds at relatively low interest rates by virtue of the implied or direct governmental support. In addition they package small mortgages into larger bundles which are more marketable.

As mentioned initially, the purpose of the four federal groups was to offset the peaks and valleys of the financial landscape. In order for this to happen these groups must show great restraint in times when the market begins to turn downward. It was hoped that this would happen automatically since the groups should be operating parallel to the securities market. But, during the first real test when the market dropped in 1972 the corresponding change did not occur. Because these institutions have, in general, lower interest rates by virtue of their federal backing, they were able to

compete favorably with commercial borrowers. The net result was that in a time when they should have been curtailing activity and allowing savings institutions to pick-up the slack they were making a killing on the market, thereby reinforcing the cycle instead of dampening it.

In addition to introducing programs to aid the housing economy in general, there was also activity in the field of financing subsidized units. As the 1968 Housing and Urban Development Act called for the construction or rehabilitation of six million units, it was supplemented with a mortgage subsidy program (Section 235),and a rent subsidy program (Section 236). Both of these programs provided for the federal government to subsidize the interest payments in order to lower the owner's interest rate to as little as 1%. In addition, the 236 program for multi-family housing provided a tax incentive by allowing for accelerated depreciation. The two programs together provided some form of subsidy for approximately 275,000 units from 1968 through 1972.[2]

In early 1973 President Nixon froze additional spending under these programs except for those funds involving projects already under construction. Since this impoundment of federal funds the availability of subsidized units has dropped dramatically.

2. H. J. Aaron, Shelter and Subsidy, Washington D.C.: Brookings Institute, 1972, pp. 229-230

C. New Jersey HFA

In 1967 the New Jersey Housing Finance Agency was established to meet the housing needs of New Jersey's moderate income families. In its first five years of operation the agency has provided funds for the construction of 13,956 housing units within sixty seperate developments.[3] Since the HFA can lend mortgage money at interest rates from 2% to 2.5% below prevailing market rates, it has been quite successful in helping to fulfill the need for public housing. As a part of the Department of Community Affairs, this agency has been able to support its activities through the sale of revenue bonds. Sale of these bonds has not been difficult because they are not subject to federal income tax.

The upper income limit for families eligible under the program is $21,000 per year. However, because of sharply increasing construction costs the agency has been unable to help families with incomes under $12,000 without the help of federal subsidies. By acting as an intermediary they have been able to make federal monies available to local developers through the Section 236 rent subsidy program. With this help they have provided housing to families with incomes as low as $3000. As of October 31, 1972, the agency had reserved over 8 million in federal funds for the construction of 6,269 housing units.[4]

3. New Jersey Housing Finance Agency 1972 Annual Report, NJHFA, Department of Community Affairs, Oct. 1972, p. 1

4. Ibid., p. 9

CHAPTER V

SOCIO-ECONOMIC CONDITIONS

A. Community Reaction

When the boundaries of the Hackensack Meadowlands District were drawn, fourteen individual communities had portions of their properties lying within its jurisdiction, but in no one case was any of the communities entirely within the District. This allowed each of the individual town governments to continue to operate autonomously even though they were united by a common plan. Each of the fourteen municipalities could claim that it was unique and individual to the rest. However, it was true that all had a common trend running within their existing zoning documents. Specifically, each had zoned the higher up-land portions of the town for residential and commercial uses and had relegated the lower lying meadowlands areas for the industrial development. In effect, had the HMDC not been established, the meadowlands would have become an asphalt jungle of industrial buildings and transportation networks.

The establishment of a state run planning commission which would control the zoning of an area was a direct challenge to the longstanding practice of home rule in the State of New Jersey. Therefore, whatever plan had been put forth, it would have met with strong opposition from local communities and their elected officials. In addition, almost

every special-interest group in the area was opposed to the plan. Although initial negative reaction was universal, it has been more critical in those towns which will absorb the proposed 125,000 new residents over the next thirty years. Namely, these include the Boroughs of Carlstadt, Rutherford, East Rutherford and Lyndhurst in Bergen County and the Town of Secaucus in Hudson County.

A negative reaction to housing is one thing, but a negative reaction to high-rise multi-family housing may be quite another. A study done by Rutgers University indicated that the number of owner occupied homes within a town is probably the most significant variable with regard to stringency of local zoning ordinances toward multi-family development.[1] In effect, as all of the above referenced municipalities have a high number of owner occupied single family homes, they are more inclined to permit that type of development rather than the higher density residential proposals set forth by the Commission.

Traditionally, negative reactions to residential development invariably includes discussions on increased taxes and numbers of school children to be educated under local school systems. In addition, when we speak of high-rise multi-family development local residents are also highly

1. A. B. Sagalyn and G. Sternlieb, Zoning and Housing Costs, Rutgers University, 1972, p. 52

concerned with the supply of utilities and services, i.e., water supply, sewage treatment and fire protection.

If the above problems have not raised the interest of the local citizen, the mention of subsidized housing surely will. The words "public housing" conjur up images of poor Blacks and Puerto Ricans who would move in by the thousands and quickly turn the new housing into ghetto tenaments. Their concern is further enhanced by the fact that the Hackensack meadowlands have over the last ten years served as a boundary separating the mixed racial conditions of Hudson County from the hitherto "lilly-white" upper Bergen County. The 1960 and 1970 census reports indicate that during that ten year period, Bergen County had an increase of 118,000 additional residents. This represented a 15.1% increase over the previous ten year period. Only 12,000 of the new residents were non-white and this represented a 68.4% increase. Similar figures for Hudson County indicate that it experienced a net loss of 1,000 people in its total population figures from 1960 to 1970. However, there was an increase of 25,100 non-white residents which indicated as increase of 59.2% in that category. In effect, there was a net non-white population increase effectively equal to the white migration outward to the suburbs.[2]

2. Ibid., p. 97

B. Tax Sharing

In an effort to alleviate some of the problems related to residential support, (schools, utilities, taxes) the HMDC enabling legislation provided for the establishment of an intermunicipal tax sharing account. This law is unique to the Meadowlands District and is not found anywhere else within the United States. Essentially, it provides that municipalities with residential development, parks or marshland preservation areas which do not generate enough tax revenue to be self-sufficient will be supported by those areas which have been designated for commercial and industrial "high ratable" uses. The net result is that all fourteen communities have a common share in the development of the total comprehensive land use plan. A portion of each town's taxes is paid into a common pool and then redistributed to those communities which are responsible for providing services for new residents.[3]

C. Intermunicipal Reaction

As the fourteen constituent municipalities have now been linked by the almighty dollar through the use of tax sharing, it is highly possible that reaction to multi-family high-density residential development will be shared by all of the municipalities rather than only the five which are directly involved. Since each SPA submittal requires

3. Intermunicipal Tax Sharing Theory and Operation, HMDC, Trenton, N. J., 1972

a hearing to allow for public comment it is conceivable that representatives from each town will use this opportunity to comment on the economics of each individual development plan.

The concern of economics is also one of the developer. If the Commission is to meet its mandate of providing the housing needed within the greater metropolitan area, it must provide a means by which this end can be met. Statistical information of housing costs indicates that the median value of housing in Bergen County in 1970 was $31,700. While this cost is in itself very high, it should be noted that the average cost for new houses built during 1971 in Bergen County was $67,000.[4] These excessive housing costs and the zoning ordinances which support that type of development should certainly be considered exclusionary in nature, for they have definitely ruled out the possibility of low or moderate income families gaining access to these areas. For these reasons, any proposal to provide low income housing will almost certainly meet with combined opposition from local groups.

4. A. B. Sagalyn and G. Sternlieb, op. cit., p. 22

CHAPTER VI

ANALYSIS

A. Statement of Problem

In the preceeding five chapters, I have defined and discussed the variables which must be addressed if large amounts of housing are to be provided within the Hackensack Meadowlands. More specifically, I have looked at those items which will be important in the decision of whether industrialized-subsidized housing can be a viable solution to providing a portion of this shelter requirement. If one accepts the premise that regional planning is a necessity within this suburban area, then the administrators of the HMDC Land Use Plan have no choice but to attempt to answer the needs of the region's elderly as well as those of low and moderate income groups. An analysis of the various factors will help us decide if the efficiencies of mass production and the use of special financial tools can overcome the traditional hurdles and bring us to the desired goal.

B. Physical Factors

As mentioned in Chapter III, the meadowlands area is unique in terms of its unusual foundation conditions. Excavation of organic matter to a firm bearing stratum and

backfilling with structural fill can bring site preparation costs up to $3.00 or $4.00 per square foot for typical low-rise structures. The cost of end bearing piles driven to bedrock some 100 feet below is just as expensive, but becomes more reasonable with heavier loading conditions. Concentrations of units in high-rise structures may produce certain economies in terms of foundation costs. This is compatible with HMDC density regulations and has been proven structurally feasible for industrialized structures through certain of the Operation Breakthrough prototypes.

Because of various ecological and zoning constraints it will be necessary to build these housing structures on a minimum site with as little disruption to the surrounding marsh as possible. The builder may in this case choose to use the higher ground areas wherever possible or he may have to construct such areas. In either event , he should use upland and lowland areas in ways that complement their respective uses. The use of pre-fabricated industrialized units could allow for up to 80% of the construction to take place off-site therefore reducing space requirements and operations at the building location.

Access is another key factor in both site work and building construction phases. Even though the meadowlands is criss-crossed by a large transportation network, high-

ways do not reach those areas currently proposed for development. It may be possible that the river itself can serve to provide access to the sites. Barge mounted pile-driving rigs and dredges could be used to build the island sites. In addition it might also be possible to float completed housing units directly to the construction area.

C. Ecological Considerations

The story of ecological and environmental action in this country seems to have been one of feast and famine. The total disregard of such considerations in the past has brought us to the point where we no longer have a choice of accepting environmental controls. On the other hand, panic reaction and lack of good back-up data have led to other problems. The current energy crisis has been due in part to unrealistic constraints on the expansion of nuclear powerplants and delays on other energy projects. The HMDC has adopted a realistic policy of saving those areas which show the most promise of full revitalization of the marshland eco-system and has allowed for development on those areas which are less valuable or in which partial development can guarantee protection of good areas.

The Island Residential SPA regulations permit and in fact require development but at the same time insist on strict compliance with environmental guidelines. Destruction of the marsh edge-effect, control of water quality

and restrictions on noise and vibration are all required to assure that the remaining marshland open space will survive the onslaught of the construction crews and remain an asset to the new residents as well as being a functional part of the total marsh estuary.

Again, the use of barge mounted construction equipment and industrialized housing units may serve to reduce the shock imposed on the local ecological system.

D. Social Factors

To say that an increase of 125,000 additional residents will have an effect on the existing communities of Carlstadt, Rutherford, Lyndhurst and Secaucus is an understatement. However, to say that the impact will be devastating is probably not true either. The traditional concerns over who is going to pay for education costs and basic services can be solved by use of the intermunicipal tax sharing pool. Also, with the possible exception of Secaucus, the new residential areas are so far removed from the existing residential-commercial areas that they will have little more psychological effect on the local population than if the change was occurring in the neighboring municipality.

The most significant impact will probably be the reaction to the "Public Housing" aspect of the plan. While everyone agrees that something must be done to provide a

decent living environment for all, everyone also agrees that it should be done somewhere else. The recent problems of Forest Hills and Kawahida Towers have left bitter memories in well established middle and upper class neighborhoods. The key to solving this problem lies in the ability of the federal or state government to adopt a realistic subsidy program in conjunction with an energetic economic policy.

First of all, public housing must be made essentially indistinguishable from surrounding units. Secondly, it should be remembered that this housing is designed to help low and moderate income families, not poverty cases. Lastly, with the possible exception of the elderly, there must be an integration of housing. This is to say, that subsidized units should be scattered throughout the neighborhoods, and the total number of such units within one given building should be limited to a fixed percentage.

The necessity of adopting the above conditions is easily evidenced by considering the plight of public housing in this country today. Currently, there are over one million units of public housing serving families that are not self-supporting. Because of this and other related factors, most public housing authorities are forced to accept the worst sites and are usually unable to attract good tenants. As a result, they invariably have high vacancy rates, poor records for rent collection and high maintenance costs. A

public housing projects in Chicago recently tried a very successful experiment in which they accepted a maximum of 35 percent Blacks and 30 percent welfare tenants.[1] The result was better rent collection and lower maintenance. This type of approach may be warranted in the Meadowlands area or for that matter within the entire New York City metropolitan area.

E. Economic Factors

In January of 1973 President Nixon froze expenditures for new subsidized housing. In effect all monies under the primary Section 235 mortgage subsidy and Section 236 rent subsidy programs were limited to use on projects already under construction. By the time the President re-addressed the problem in September 1973, the programs had essentially ground to a halt. In the marketplace in general there were other problems which had led to a tight money situation and consequently housing starts were down to 86,000 units per month by January of 1974.[2] This rate is approximately one half that of the year before, and well below two hundred thousand figure needed to guarantee that the total 26 million unit goal is reached. In his September speech the President did take steps to get the housing market out of its current

1. J. S. Fuerst, "Can Public Housing Survive?", American City, November 1973, pp 84-85

2. HUD Newsletter, U.S. Department of Housing and Urban Development, Washington D.C.; March 4, 1974

slump by pumping more money into the GNMA and the FHLBB. In addition he authorized HUD to approve subsidies for an additional 50,000 rehabilitated units and 150,000 new units utilizing funds remaining in the 235 and 236 programs. Beyond that he urged the Congress to do a complete rework of the housing laws.

Under this directive the Congress is currently attempting to produce the Housing and Community Development Act of 1974. The Senate Banking Committee has approved the bill with an $8.3 billion price tag. The most significant portion of the bill with regard to subsidies is that it would replace the existing 236 program with a modified version of the Section 23 Leased Housing program. Section 23 is an experimental technique operating since 1965. It provides for direct rent-subsidy payments of up to 25% of the incomes of low income families. In the first five years of operation, Section 23 subsidized a total of 75,000 units and appears to be the first method which will be able to allow for economically integrated housing.[3]

Of course, any legislation adopted by Congress will be limited in the number of units it can produce by the actual costs of construction. Even in light of the relatively bad showing of Operation Breakthrough it appears that industrial-

3. A. Hirshen and R. LeGates, "Dreary Deadlock Revisited", Architectural Forum, March 1973, p. 68

ized housing will gain an economic edge over conventionally built units. The key to success of course, as in any other mass produced item, lies in volume. It is really unfair to judge the results to date based on the relatively low number of units produced. A discussion with representatives of the Shelley Systems concrete module indicated that a requirement for 1000 units would justify the location of a casting facility at or near the job site, greatly reducing production and hauling costs and improving the flexibility of the system. In addition, this volume would allow for a consistent level of production, an aspect which has proven extremely valuable to the mobile home industry.

The use of Section 23 type subsidy will only solve the income subsidy portion of the three basic economic problems listed in Chapter I. Reduction of cyclic disruption and the availability of mortgage money must still be addressed. Since the HMDC relies on private enterprise to actually construct this proposed housing, these problems will be relevant.

The programs set up by the Federal government to reduce cyclic trends are good ones and need only be supplemented with adequate controls to insure their smooth operation. With regard to availability of mortgage credit, it can only be hoped that a management group with a firm development plan and 80 percent representation of the land owners

would have increased borrowing power in the market.

F. Administrative Factors

The HMDC through the use of its various adopted codes and regulations has demonstrated its ability to administer land use control. By virtue of its use of the tax sharing law the Commission has been able to set itself above the battles of industrial uses and rateables which generally bear on the decisions of local and municipal administrators. They have therefore been able to weigh the attributes of individual plans based on their physical, social and environmental values without a total reliance on balancing the budget.

From the standpoint of industrialized housing, the HMDC's most impressive administrative asset is that of its building codes. With the adoption of a performance rather than a specification type code, new materials and assembly techniques can be used without sacrificing quality or the safety of the people within the structures. This will become more important in the future as the traditional sticks and stones of construction become exceedingly more expensive by virtue of the laws of supply and demand. Thousands of new materials have been introduced by the so-called "Space Age Technology", there is no reason why the construction industry should not be taking full advantage of them. The

use of the HMDC Master Plan provides an opportunity for their introduction into an otherwise highly conservative and tradition bound industry.

The HMDC may also be able to serve a function in the realm of financing. The Commission may if it chooses, use its bonding powers to finance housing projects; or like its sister agency, the HFA, it may be able to take advantage of the $2.6 million demonstration grant program sponsored by the Department of Community Affairs to finance projects submitted by non-profit groups. This may be of value in meeting the needs of the region's elderly. Lastly, they may also be able to serve as a go-between in submitting applications for federal monies through HUD. This approach has proven very effective in its use by the HFA.

CHAPTER VII

CONCLUSIONS

Inasmuch as one is often able to predict the future by the logical extension of current trends, I contend that "Industrialized-Subsidized" housing can and will become a reality in the Hackensack Meadowlands. This prediction is fostered by the knowledge that the HMDC regulations have the internal flexibility and the overall soundness to make the total Land Use Plan workable, thereby making the housing portion of the plan mandatory.

However, if all of the visionary aspects of the housing plan are to be realized, the following action should be taken.

1. The HMDC should recommend favorable action on Bill #1299 to provide a statewide performance type code which allows for innovative materials and techniques needed to promote the use of mass produced housing.

2. The HMDC should limit phased construction of SPAs to neighborhood size (approximately 2500 units) in order to take full advantage of the economies of mass produced units and the possibility of production near the site.

3. The HMDC must not relent on the enforcement of its environmental controls, especially during the construction of the Island Residential SPAs. This will encourage the contractor and builder to do a maximum amount of work off-site.

4. The federal government must develop coherent and parallel financial and housing policies. The Housing and Community Development Act of 1974 may be that legislation. If so it must divorce itself from reliance on the filter system and should rely heavily on something similar to the Section 23 Leased Housing proposal. in order to promote economically integrated development. The federal financial policy should also de-regulate local savings and loan and mutual savings associations by allowing them to experiment with variable rate and variable term mortgages so as to give them the flexibility to compete with the open market for available funds.

5. The developer should make full use of aid provided by the HFA. Unlike some federal programs, the HFA recognizes the need for support facilities and can provide partial subsidy of related educational and commercial facilities. This factor should not be overlooked, as these types of peripheral development are mandatory under HMDC regulations.

With positive action taken on all or most of the above conditions it should be possible to provide the housing that the Northern New Jersey area needs.

The ability to mass produce housing at costs below those of conventionally built units would provide the economic edge required to make public housing feasible and economically stable. This coupled with the administrative flexibility of the HMDC will guarantee that the ills of inadequate shelter can now be corrected.

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